

Grus Americana

Whooping Crane Conservation Association

Volume 55, Number 1

Record Number of Nests at Wood Buffalo National Park

A record number of Whooping Crane nests — 98 — was found in Wood Buffalo National Park during the 2017 nesting survey conducted May 18-21, according to Mike Keizer of Parks Canada. This number greatly surpasses the previous record of 82 nests set in 2014.



Aerial photo of a Whooping Crane nesting area in Wood Buffalo National Park taken on May 19, 2017. An adult Whooping Crane appears as a speck of white (center left) (John McKinnon/ Parks Canada).

The survey was carried out by Parks Canada, Environment & Climate Change Canada, and the Government of the Northwest Territories. This was the 51st year of annual surveys of the Whooping Crane population in Wood Buffalo National Park. *Continued on page 2*



1966-2017

51 Years of Whooping Crane Conservation

Inside this issue:

<i>Welcome Tom Leiden</i>	2
<i>Photo – Whooping Crane Pair at Patuxent</i>	2
<i>Spring Clean-up in San Antonio Bay</i>	3
<i>Aransas-Wood Buffalo Flock Summary</i>	4
<i>History-making EMP Wild Chicks</i>	5
<i>Oldest Photo of a Whooping Crane?</i>	6
<i>Flock Updates</i>	6-9
<i>Book – Travels on the Green Highway</i>	10
<i>In Memoriam – Glen Smart</i>	11

Patuxent Whooping Crane Propagation Facility Slated for Closure

According to a recently released United States Geological Survey (USGS) document titled 'Program Changes', the Whooping Crane Propagation Program at Patuxent Wildlife Research Center (PWRC) in Laurel, Maryland will be ended. "This eliminates the largest dedicated captive breeding

effort for Endangered Species Act-listed cranes and eliminates capacity within the Department of Interior for avian studies that require controlled studies with large, rare birds. The program, while providing valuable contributions to whooping crane recovery, is no longer required to meet species recovery goals", states the document.

The closure comes in response to cuts of \$159.6 million to the USGS in the 2018 President's budget. The budget of the USGS Wildlife Program will be cut by \$10.7 million, which includes \$1.5 million previously allocated to the Whooping Crane program at PWRC. It is expected that the birds and equipment at Patuxent will be moved to other (non-governmental) breeding facilities.

Record nests counted at Wood Buffalo NP (continued from page 1)

The large jump in nests from previous years is a result of two things: (i) the arrival at breeding age of the large cohort of birds that was produced during the period 2010 to 2013, and (ii) the excellent habitat conditions that provided suitable nesting sites for the cranes, with most wetland basins being full of water.

The next set of surveys will be conducted in August to determine the number of young fledged.

“Protecting and promoting ecological integrity is a priority for Parks Canada,” said Keizer. “The data gathered each year allow us to track the health and growth of the population, and allow us to assess the current state of the cranes’ habitat, which Parks is directly responsible for. The Whooping Crane nesting area is one of the reasons why Wood Buffalo National Park was named a World Heritage Site by UNESCO.”

“2017 also offers an opportunity to celebrate this amazing recovery success story of the Whooping Crane and take strides to advance protected areas and biodiversity as part of the celebration of Canada’s 150th.”



Two whooping crane eggs in a nest in Wood Buffalo National Park (file photo — Libby Gunn / Parks Canada).

Thanks to Mike Keizer of Parks Canada and Brian Johns

Welcome Tom Leiden, our new secretary!

The Whooping Crane Conservation Association is very pleased to announce we have a new secretary, Tom Leiden. Tom is a passionate wildlife conservationist who hails from Pepper Pike, Ohio. Please see Tom’s article on the next page, in which he describes his experience collecting derelict crab traps in San Antonio Bay, Texas over several days this past winter. We will hear more from Tom in the next issue of *Grus Americana*.



Whooping Crane Pair at Patuxent Wildlife Research Center

Patuxent, where successful captive Whooping Crane propagation was begun.

Whooping Crane pairs defend their territory through unison displays. These can be in the form of long, synchronous strides as they walk their territory (as seen in the photo) and by unison calls (file photo — USGS Patuxent).

Spring Clean-up in San Antonio Bay – Removal of Blue Crab Traps

By Tom Leiden, Allan Berger and Brigid Berger

I have been involved in many spring clean-ups at home, but on Saturday, February 18, 2017 I was pleased to join Allan and Brigid Berger in one of the grandest spring clean-ups: the collection of derelict crab traps in San Antonio Bay, Texas. Abandoned traps continue to function, trapping fish and crabs that end up dying in an endless cycle. Picking up traps is essential to improving the health of the bays and for the wildlife, such as the Whooping Crane, that depend on it.

Norman Boyd, the San Antonio Bay Ecosystem Leader for the Texas Parks & Wildlife Department, spearheaded the overall project by seeking support from many organizations and individuals to assist in this endeavor. This is a coastal-wide effort to remove as many abandoned crab traps during the 10-day crabbing closure.

Allan, chairman of the San Antonio Bay Partnership, worked diligently to ensure that there were enough volunteers to cover our area on Saturday. We spent over 7 hours canvassing our area, collecting 38 traps. It was a lot of hard work but the weather was beautiful and the purpose sublime. A total of 56 volunteers in 19 boats removed 570 traps from the San Antonio Bay complex over the closure period – double that from last year!

I had such a good time that I joined Dr. Liz Smith and Hillary Thompson of the International Crane Foundation to collect crab traps in another section of Aransas Bay on Wednesday, February 22. It was another gorgeous day and we ended up with 21 traps.

Overall, 1,078 crab traps were removed from the coastal areas during the 10-day closure. It was truly a worthwhile endeavor and I look forward to participating in next year's collection.



Clockwise, from top left: Tom Leiden with crab trap; Allan Berger & Tom Leiden docking with a full load of traps; Soon to be liberated blue crabs (first 3 photos by Brigid Berger); ICF Team Tom Leiden, Hillary Thompson & Liz Smith (photo by Captain Tommy Moore).

This article appeared originally in *The Unison Call* (vol. 27, no. 2), the newsletter of the North American Crane Working Group.

Aransas—Wood Buffalo Whooping Crane Population Summary 2014-2017

	2014	2015	2016	2017
No. of nests detected at WBNP (May)	82	68	78	98 [†]
No. of fledged chicks detected (August)	32 ^{**}	23 [*]	45 ^{***}	
Average no. of chicks per nest[#]	0.39	0.34	0.57	
Additional territorial pairs (non-nesters)	43	20-24	18	
Estimated total no. of birds at Aransas NWR within the primary survey area[‡]	308 (95% CI 267-350)	329 (95% CI 293-371)	?	
Estimated no. of juveniles at Aransas NWR	39 (95% CI 33-46)	38 (95% CI 33-43)	?	

†The most nests ever recorded. *All family groups had a single offspring; **two families with twins; ***one family with twins

[#]20-year average is 0.48 chicks per nest

Wood Buffalo National Park (WBNP) 2014 data are from *Northern Journal* (norj.ca), Sept. 1, 2014, quoting Mark Bidwell; WBNP 2015 data are from Bidwell and Conkin (March 2016), *Recovery and Ecology of Whooping Cranes: Monitoring of the Aransas-Wood Buffalo Population during the Breeding Season 2015 Report*. WBNP 2016 breeding data are preliminary results from the Canadian Wildlife Service, with thanks to Mark Bidwell; 2017 nest survey data are from Mike Keizer, Parks Canada.

Aransas NWR winter counts are from 'Whooping Crane Updates' at the ANWR website.

[‡]Estimated numbers of birds **outside** the primary survey area in 2014 and 2015 were 6 and 9, respectively. (95% CI means 95% confidence interval).

We are still waiting for Aransas NWR winter survey data for 2016 to be released. — Ed.

An Opportunity for Association Members

You can help us as we continue to cooperate with other conservation groups in preserving winter habitat for Whooping Cranes! Coastal properties are expensive. The cost of the 720 acres acquired in November 2016 (see *Grus Americana* vol. 54. no. 2) was slightly over one million U.S. dollars or \$1,389 per acre. We welcome any amount of money that you are able to donate toward purchase of habitat. When you donate, please indicate that you are contributing for the purchase of habitat. Funds can be donated through our website <http://whoopingcrane.com> or by sending a check to the Whooping Crane Conservation Association, 2139 Kennedy Avenue, Loveland, Colorado, 80538. WCCA is a nonprofit 501(c)(3) corporation with the purpose of advancing conservation, protection, and propagation of Whooping Cranes. The Association is able to receive funds by gifts, bequests, legacies or transfers and to administer such funds for the benefit of cranes. Donations from U.S. citizens are tax deductible. Thank you for your help for these marvelous birds.

Breeding season produces history-making wild chicks in the Eastern Migratory Population of Whooping Cranes

MADISON, Wis. (20 June 2017) — A history-making breeding season is winding down for whooping cranes in the Eastern Migratory Population that summers in Wisconsin, yielding a dozen fuzzy, cinnamon-colored chicks that are the latest and most hopeful signs yet for efforts to build a self-sustaining flock of whoopers in eastern North America.

One of the chicks is a second-generation wild bird; the offspring of the first wild cranes hatched in Wisconsin following the start of the Whooping Crane Eastern Partnership restoration project in 2001. The project aims to establish a second migratory flock in North America to be a backstop to the other migratory population of whooping cranes that nests in Canada's Wood Buffalo National Park and winters on the Texas Coast.

"We're encouraged by the recent successes in the core project area and hope they are trends that continue in the future," says Leann Wilkins, acting refuge manager of Necedah National Wildlife Refuge.

The second-generation crane was hatched by the very first wild hatched chick in the flock. "These second-generation chicks are absolutely critical to helping build a self-sustaining population," Wilkins says.

Davin Lopez, a Wisconsin Department of Natural Resources conservation biologist, says another crane chick hatched this spring is significant for its parentage: its mother is the first to successfully nest from among those birds that were raised in captivity by adult cranes, not humans in crane costumes, before being released to the wild. "The idea is that having cranes, not costumed caretakers, rear the chicks would produce cranes that would later be better, more vigilant parents themselves," Lopez says. "And now we have a chance to test the idea to see if parent-reared cranes are indeed better parents."

Reducing chick mortality is seen as a key to establishing a self-sustaining flock because wild whooping cranes have so few chicks to begin with, Lopez says. The cranes typically lay two eggs, and it is very common for only one to hatch and for one to none to survive to fledging.

Whooping crane chicks require 80 days to fledge, meaning to have the ability to fly and be able to escape predators themselves. "So far, our oldest chick is 48 days. So that chick, and the other 11 still on the landscape, still have a long way to go to fledge, and that's important to keep in mind. But they've beaten the odds so far and the 2017 breeding season has been a big success in many ways," Lopez says. "We are very happy with the results so far, we are cautiously optimistic for this next "chick" phase, and we think what we're seeing on the landscape shows we're heading in the right direction."

Since the Whooping Crane Eastern Partnership began reintroduction efforts in 2001, the population of Whooping Cranes in this eastern flock has gone from zero to more than 100 birds but is not yet considered self-sustaining.

To reach that status, partners are adapting their management to try to reduce chick mortality. They are reducing human interaction with some captive-reared birds, hoping that by having cranes, not costumed humans, raise the chicks the youngsters will pick up valuable lessons that will help them later be more vigilant parents. Other tweaks include raising some chicks using costumed handlers but transferring those chicks from captivity into the release areas earlier so they have more time to adapt; along these lines, seven birds now being raised in captivity will be arriving in Wisconsin this week and will be raised in an enclosure at White River Marsh in Green Lake County for eventual release.

Whooping Crane Eastern Partnership founding members are the International Crane Foundation, Operation Migration, Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, the U.S. Geological Survey's Patuxent Wildlife Research Center and National Wildlife Health Center, the National Fish and Wildlife Foundation, the Natural Resources Foundation of Wisconsin, and the International Whooping Crane Recovery Team.

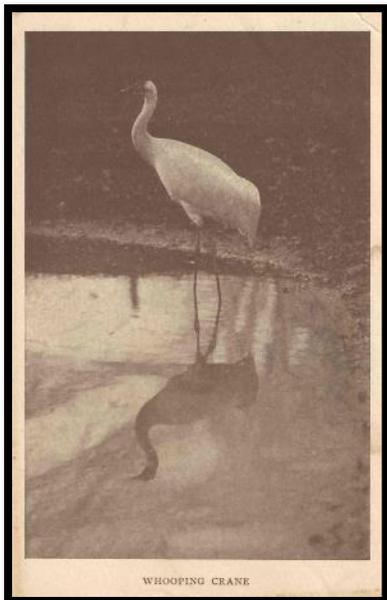
News release of the Whooping Crane Eastern Partnership (www.bringbackthecranes.org), with minor editing.

Eastern Migratory Population Update

Population Size Estimate — As of 1 June, the current maximum population size is 97 (44 F, 51 M, 2 unknown). This does not include 2017 wild-hatched chicks. As of 1 June, at least 84 Whooping Cranes have been confirmed in Wisconsin, 2 in Illinois, 1 in Iowa, 2 in North Dakota, and 1 in Kentucky. The remaining birds' locations have not been reported during May. (data are from www.bringbackthecranes.org)

Parent-reared Class of 2016 — Where are they now?	
Crane no.	Status (as of June 1, 2017)
29-16 (M)	Spent part of May in Chippewa Co, WI, then moved to Ward Co, North Dakota with 39-16 (M)
30-16 (M)	Spent all of May in Green Lake Co, WI. He was last seen associating with 5-12 (M)
31-16 (M)	Spent all of May in Stephenson Co, IL
33-16 (F)	Spent most of May in Dane Co, WI, but as of June 1st was in Dubuque Co, IA
38-16 (M)	Found dead on March 8th in Poinsett Co, Arkansas. Probable cause of death: vehicle collision
39-16 (M)	Spent part of May in Chippewa Co, WI, then moved to Ward Co, ND with 29-16 (M)
69-16 (F)	Spent all of May with 65-15 (F). These two continued to move around and made a trip to Iowa before returning to Fond du Lac Co, WI
70-16 (M)	Spent all of May in Hardin Co, TN, but by the end of the month moved to Knox Co, KY
71-16 (F)	Moved from Grant Co to Walworth Co, WI

Nine of 12 parent-reared juvenile Whooping Cranes that were released into Wisconsin in the fall of 2016 survived their first migration and wintered in Florida, Georgia, Alabama, Tennessee, Arkansas and Indiana. One bird, 70-16, failed to migrate and was captured and transported to Wheeler National Wildlife Refuge in Alabama, now a wintering hot spot for Whooping Cranes.



Is this the oldest photograph of a Whooping Crane?

This postcard of a Whooping Crane is postmarked March 4, 1904 and was mailed from New York City to Westchester, New York. No information is given about the photographer or where the photo was taken, but a likely location would be the Bronx Zoo (then the New York Zoological Park). A live Whooping Crane was said to be present at the zoo in 1913, but its acquisition date is not known [1]. Another possible location is the Washington National Zoo, Washington, DC, which had three captive Whooping Cranes at various times in the early 1900s, at least one as early as 1897 [1].

[1] C. Barrett and T.V. Stehn (2010) A retrospective of whooping cranes in captivity. *Proceedings of the Eleventh North American Crane Workshop* 11:166-179.

Louisiana Whooping Crane Update – Spring 2017



Left: Male L8-13 attacking a 'costume' as we try to capture his chick, LW1-16, in Jefferson Davis Parish, 8 February 2017. Photo by LDWF/Jim LaCour. Right: Wild-hatched female LW1-16 in Jefferson Davis Parish four days after banding, 14 February 2017. (see 'Captures' section on next page) Photo by LDWF/Eva Szyszkoski.

LW1-16 is the first Whooping Crane to hatch in the wild in Louisiana in more than 75 years (see *Grus Americana*, vol. 54, no. 1). In the previous issue of the newsletter (vol. 54, no. 2), we still did not know the sex of LW1-16, but genetic testing of blood drawn during its recent capture revealed LW1-16 to be a female. — Ed.

Autumn 2016 – As of 1 September 2016, the Louisiana non-migratory population consisted of a maximum of 37 individuals (14 males, 22 females and 1 unknown).

Unprecedented flooding in southern Louisiana in mid-August caused several breaches to the levee surrounding the White Lake refuge where the release pen is located. These breaches were unable to be fixed in time to use the pen this year. To compensate, we constructed a smaller, temporary release pen in another unit at the White Lake Wetlands Conservation Area that could accommodate a small group (8-10) of cranes.

2016 Cohort – Twenty-seven captive reared juveniles were released into the Louisiana population in the winter of 2016/17. The first shipment of 4 cranes (3 male, 1 female) arrived from the International Crane Foundation in Wisconsin on 9 November. They received their permanent bands and transmitters on the evening of their arrival and were placed in the top-netted portion of the release pen at the Rockefeller Wildlife Refuge. They were released from the top-netted pen on 21 November.

The second shipment of 10 cranes (6 male, 4 female) arrived from the Patuxent Wildlife Research Center in Maryland on 1 December. They were banded upon arrival and were placed in the top-netted section of the release pen at Rockefeller. Due to aggression at the captive center, three of these cranes had not been socialized with the rest and had to be kept separate from the larger group in a smaller sectioned-off portion of the top-netted pen.

A third shipment of 11 cranes (6 males, 5 females) arrived from the Patuxent WRC on 5 December. Three cranes were brought to the Rockefeller WR; two were placed with the smaller group of aggressive cranes while one was placed in the larger portion of the pen. These new cranes were banded on 6 December and all 13 were released from the Rockefeller pen on 27 December. The remaining 8 were placed in the top-netted portion of the release pen at the White Lake WCA, banded on 7 December and released on 20 December.

The final two juveniles (2 males) were shipped from the Calgary Zoo, Alberta, Canada on a commercial Delta flight to the George Bush Intercontinental Airport in Houston, Texas on 15 February and were transported to the White Lake WCA via cargo van. They were banded that evening, held overnight in a small temporary pen and hard-released directly into the marsh the following morning. Unlike all previous captive-reared cranes, these two juveniles were hatched and reared by captive adult pairs and had no exposure to costumed humans.

Supplemental food was discontinued at the White Lake WCA release pen on 23 February and at the Rockefeller WR release pen on 3 March.

Return from Texas – Pair L2-12 & L14-12 returned to Louisiana from Kaufman County, Texas on 21 October.

Female L8-12 returned to Louisiana from the northern Dallas area on 12 September.

A group consisting of L10-13, L12-14 & L13-14 returned to Louisiana from Jefferson County, Texas on 13 October.

Movement to Texas – Juveniles L6, 7, 13, 23 & 24-16 moved into Jefferson Co, Texas on 3 March. They had left the Rockefeller WR on 26 February.

Juveniles L5, 8, 9, 11 & 25-16 moved into Orange Co, Texas on 3 March. They had left the Rockefeller WR on 27 February.

Female L2-15 and male L6-15 moved into Liberty Co, Texas on 14 March but returned to Louisiana the following day.

Captures – Five free-flying cranes were captured for banding and transmitter replacement or removal on 6 days of attempts between 31 January and 22 March, including wild-hatched juvenile LW1-16.

Although LW1-16 was still with her parents on 10 February, both adults were seen displaying aggression toward her and it appears that after her capture, she separated completely from her parents, who began incubating just four days later.

Reproduction – Nesting again began early when pair L7-11 & L8-11 was observed with an egg on 11 February. They sat past full term and their two eggs were collected on 10 March. **(See photo of L7-11 on the back page.)**

Pair L6-12 & L8-13 began nesting by 14 February. They sat past full term, one egg disappeared and the second was collected on 20 March.

Pair L3-11 & L1-13 was observed with a nest and egg on 17 February. They sat past full term and their egg was collected on 22 March.

Pair L10-11 & L11-11 began nesting by 21 February. They have one egg and were still incubating as of 23 March.

Pairs L2-11 & L13-11 and L11-12 & L3-13 began nesting in mid-March.

None of the collected eggs had any detectable embryo development.

Contributed by Eva Szyszkoski, Louisiana Department of Wildlife and Fisheries

This article originally appeared in The Unison Call (vol. 27, no. 2), the newsletter of the North American Crane Working Group.

A further update from Eva, as of 14 June 2017:

During breeding season 2017, there were 18 nests by 8 pairs in the Louisiana Whooping Crane population, including 6 re-nests, 3 third-nest attempts, and even 1 fourth-nest attempt. Of the 18 nests, 6 were incubated past full term on non-viable eggs, 1 failed likely due to weather, 1 was abandoned, 3 failed for unknown reasons, 2 hatched out one chick each when their eggs were removed and a pipped egg was placed into their nest, 1 pair hatched out one chick from their own egg, and 4 are currently active and all reaching full term this week.

Of the 3 chicks that hatched, one disappeared at 17 days old when heavy rains flooded the property the family was on. Photos from a trail camera placed on the nest, which they continued to use as a roosting platform, showed that the chick likely drowned in the middle of the night during the storms. Another chick, hatched to its biological parents at the White Lake WCA, disappeared between 3-4 weeks old. The third chick, hatched from an egg collected at the Necedah NWR in Wisconsin, is still alive and is 39 days old as of 14 June.

Florida Resident Whooping Crane Update

The Florida resident Whooping Crane (*Grus americana*) population numbers 14 birds (4 males, 8 females, 2 unknowns) including 4 pairs as of the writing of this update. Unfortunately, this population lost its most productive male, #1291, last fall. The 14-year-old male, with his 18-year-old mate and 4-month-old chicks, was in its nest marsh when it disappeared. We assume he met his demise protecting his family. Although breaking his leg years ago, he was a fierce defender of his territory, as we discovered each time we visited his nests. He and his mate nested and re-nested 14 times from 2007–2016, fledging 6 chicks. The female and twins, now 1 years old, continue to do well.

Contributed by Tim Dellinger

Florida Fish and Wildlife Conservation Commission

Florida resident Whooping Crane #1291 stepping onto a nest platform. Note his broken left leg.



WHOOPING CRANE KILLER VIOLATES PROBATION

Trey Joseph Frederick, who wantonly shot and killed two Louisiana Whooping Cranes in southeast Texas last year and was sentenced on May 23, 2016 to five years of federal probation by U.S. Magistrate Judge Zack Hawthorn (see *Grus Americana* vol. 54, no. 2), has been arrested for violating his probation. In early June of this year, Frederick was caught hunting, in contravention of his probation. As part of his sentence, Frederick is prohibited from owning or possessing firearms, ammunition or any other dangerous weapon, and he is also prohibited from hunting or fishing anywhere in the United States.

Representatives of the Golden Triangle Audubon Society (GTAS) attended Frederick's initial appearance on revocation proceedings in Judge Hawthorn's court on June 8, 2017. According to Sherrie Roden of GTAS, Judge Hawthorn read out eight violations. However, Frederick appeared without a lawyer, so the judge set a new date (originally June 22, but this was postponed to July 13 due to Tropical Storm Cindy).

We will report on further developments in the next newsletter.

Thanks to GTAS for sharing this information.

Grus Americana is a newsletter published twice annually for members of the Whooping Crane Conservation Association, a nonprofit, tax-exempt organization dedicated to the conservation of the Whooping Crane.

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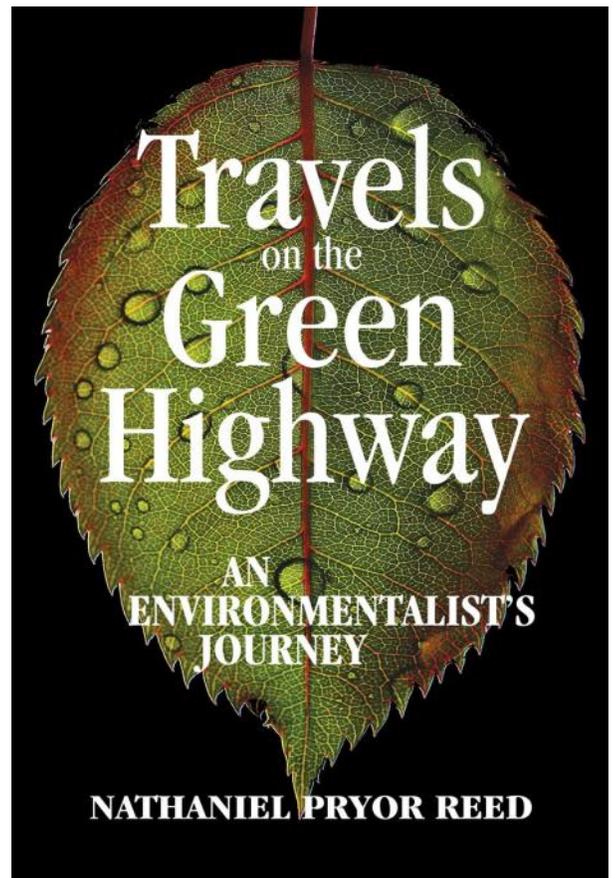
The views expressed in *Grus Americana* are those of the individual contributors and do not necessarily represent the positions of the WCCA.

WCCA member Nathaniel Reed has authored a new memoir — **Travels on the Green Highway: An Environmentalist’s Journey** — which we are pleased to highlight here. Mr. Reed has a long and distinguished career in fighting for environmental causes. While a good portion of the essays in the book concern land and wildlife conservation issues in Florida, where Mr. Reed has resided for most of his life, many other chapters describe his work and experiences beyond the Sunshine State. Chapters of immediate interest to crane enthusiasts would be: *The Whooping Crane Adventure*, a trip which nearly ended in disaster for Mr. Reed in Canada’s Wood Buffalo National Park; *Saga of the Mississippi Sandhill Crane National Wildlife Refuge*; and the intriguingly titled *The Mormons, the Sandhill Cranes and Gray’s Lake*.

Nathaniel P. Reed served as Assistant Secretary of the Interior for Fish and Wildlife and Parks in the Nixon and Ford administrations (1971-77).

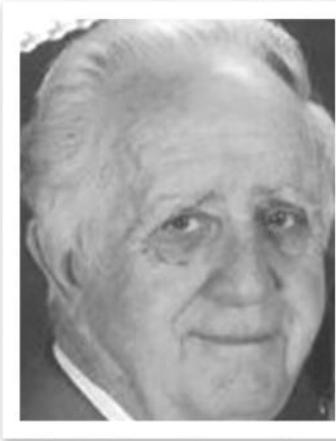
He is a former board member and vice chairman of the National Audubon Society and the Nature Conservancy, board member of the National Parks & Conservation Association, American Rivers, and continues to serve as a member of the NPCA’s Advisory Board, emeriti on the boards of the Natural Resources Defense Council and 1000 Friends of Florida, which he helped found. Mr. Reed has also served on the boards of the National Geographic Society and the Atlantic Salmon Federation.

The book can be purchased through [Amazon.com](https://www.amazon.com).



“This is a book of essays of Nathaniel Reed’s memories of behind the scenes events that helped shape this nation’s environmental laws during a period of environmental renaissance. It is impossible to overstate the contribution Nathaniel Reed has made to transforming the culture of Florida. When he arrived more than six decades ago, Florida was continuing a long-held belief that Florida, its land, water, wildlife, and other natural resources with few exceptions, were commodities to be used and disposed of at the will of the current generation of state residents. Nathaniel and a small band of his disciples in less than a decade evolved Florida to a new definition — a treasure for which each generation has a responsibility to protect for future Floridians. In culture and politics no victory is assured. Into his personal eighth decade Nathaniel battles frequent relapses into commoditization, his vigor and vision personifying the essential grandeur of natural Florida. Quite a man, quite a journey.” — Senator Bob Graham

In Memoriam



Glen Smart, one of the early contributors to our efforts to save the whooping cranes, passed away in January.

In late May 1967 Glen, Ray Erickson (USFWS), and Ernie Kuyt (CWS) collected six eggs in Wood Buffalo National Park in northern Alberta and Northwest Territories and with those eggs the captive flock was born. Out of the six eggs collected five hatched. This effort marked the beginning of a long and fruitful international cooperation between the United States Fish and Wildlife Service and the Canadian Wildlife Service in conserving these birds. There were 50 birds in the wild flock at that time.

Glen was an outstanding aviculturist as well as field biologist. From 1965 until retirement in 1990, he worked as a research biologist for the USFWS's endangered-species division at Patuxent. He played a key role as the lead aviculturist in establishing the captive flock.

Besides Glen's work with the cranes, he was an excellent taxidermist and amassed a large collection. He asked other aviculturists who had a bird die to save them for him and over the years he collected hundreds of birds to mount. He even made up a Labrador duck from parts of many other birds that couldn't be distinguished on the surface from the few old skins that still exist. He donated his collection to the University of Missouri. The collection now lines the walls of the north-south hallway of the first floor of the Anheuser-Busch Natural Resources Building. The collection includes 287 specimens of waterfowl and upland game birds representing avian diversity from all continents of the world, excluding Antarctica. The specimens are used as teaching tools in a number of fisheries and wildlife courses, including ornithology, water fowl biology and management, and advanced waterfowl ecology. Included in the collection are two species that are now extinct, as well as several species that are currently listed as threatened or endangered.

Glen was a prolific and outstanding wood carver, and from his work as a taxidermist he had a detailed knowledge of the shape and color of his subjects. He carved a wide variety of birds, including song birds, waterfowl, pheasants, cranes and many more. When the WCCA wanted an award that recognized Jerry Pratt's contribution to whooping crane conservation they went to Glen who donated a carved standing whooping crane. The carving became the master that was used to cast the bronze award now known as the Jerome J. Pratt Whooping Crane Conservation Award. He also donated numerous carvings to bird clubs and nonprofit organizations that used them to raise money for conservation projects. Many of his carvings were also used as unique awards by the International Wild Waterfowl Association. Over a period of 50 years he did over 2500 carvings and as his skill grew he advanced from competitor to judge in world championship competitions. His works are scattered across America and I have seen them in many homes in Europe. I still remember the full-sized whooping crane that he had in his living room and consider it my favorite of all his carvings.

I visited with Glen at many conservation and bird club meetings in the 40 plus years I knew him. I guess the one visit with Glen that left the greatest impression occurred several years ago when the Operation Migration ultralight airplane-led migration was stalled in Benton, KY. I called Glen and invited him down for a visit and to see the whooping crane chicks. He and two of his friends drove to Benton and after a long camp visit I dressed Glen up in one of our crane-handler costumes. The two of us walked out to the pen and maintained the silence that was required when around the birds. We had 15 chicks in the pen. After spending several minutes watching the birds we walked back. As we neared the campsite we removed our head gear and I could see that Glen's eyes were moist and the only thing he could get out was "That was how many birds there were in 1941".

Glen, 84, of Cape Girardeau, Missouri, passed away on Friday, January 6, 2017, at Saint Francis Medical Center. He was born August 9, 1932, in Rector, Arkansas, to the late William Holens and Edith Eron (Hickman) Smart. He was a graduate of Campbell (Missouri) High School and received bachelor's degrees in teaching and zoology from Southeast Missouri State University and a master's degree in zoology from the University of Missouri in Columbia. After college, Glen was an aerial photographer in the U.S. Air Force for four years. He married Patricia Ann Thompson on August 18, 1957.

Loving survivors include his wife of 59 years, Patricia Smart of Cape Girardeau; sons, Michael (Emily) Smart of Cape Girardeau and Phillip Smart of Crownsville, Maryland; granddaughters, Megan and Allison Smart; and many nieces and nephews. — **Walt Sturgeon**

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Female L7-11 defending her overdue nest and eggs in Avoyelles Parish, 10 March 2017. See pages 7-8. Photo by LDWF/Eva Szyszkoski.